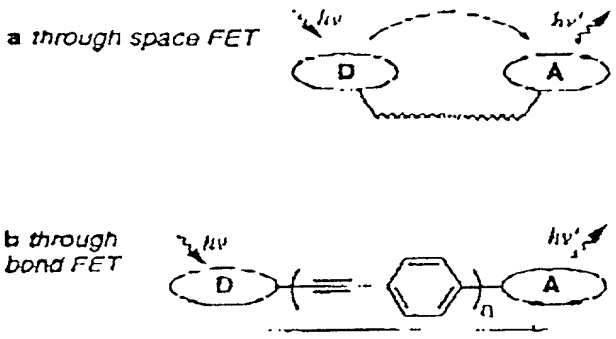
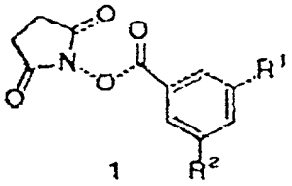
Figure 1. **a** Through space FET from a donor dye **D** to an acceptor dye **A**; **b** through bond FET.

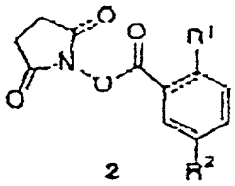


FIGURES 1A & 1B



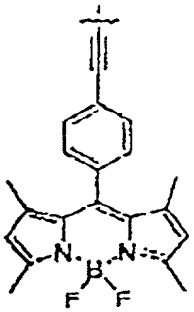
1

aa $R^1 = R^2 = a$
ab $R^1 = a$, $R^2 = b$

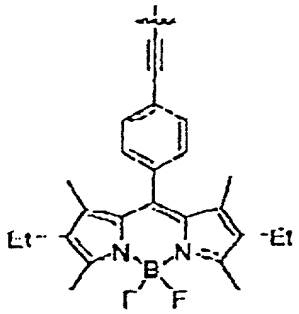


2

aa $R^1 = R^2 = a$
ab $R^1 = a$, $R^2 = b$

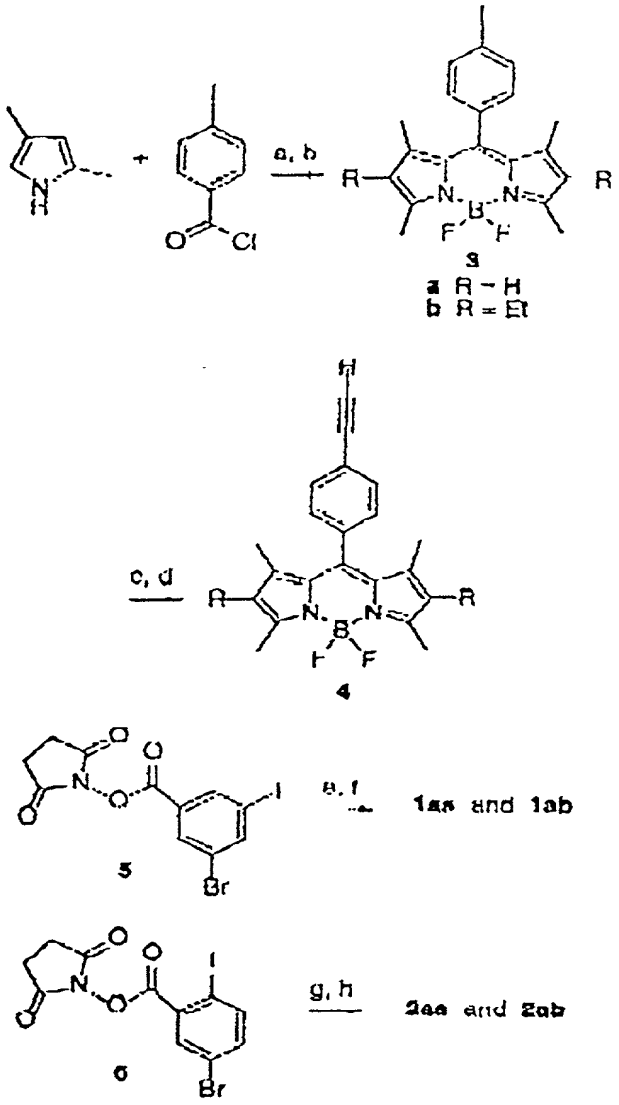


a



b

FIGURE 2



Scheme 1. Syntheses of the cassettes **1** and **2**. a) CH_2Cl_2, reflux; b)$BF_3{\bullet}OEt_2$, NEt_3, MePh, 80 °C, 26% (2 steps) for **3a** and 39% (2 steps) for **3b**; c) HCCTMS, NEt_3, cat. $Pd(PPh_3)_4$, cat. CuI, MePh 60 °C, 99% for **a** and 96% for **b**; d) TBAF, THF, 0 °C, 60% for **a** and 58% for **b**; e) **4a**, NEt_3, cat. $Pd(PPh_3)_4$, cat. CuI, MePh 50 °C, 96%; f) **4a** or **4b**, NEt_3, cat. $Pd(PPh_3)_4$, cat. CuI, MePh 80 °C, 65% for **1aa** and 23% for **1ab**; g) **4a**, NEt_3, cat. $Pd(PPh_3)_4$, cat. CuI, MePh 45 °C, 83%; f) **4a** or **4b**, NEt_3, cat. $Pd(PPh_3)_4$, cat. CuI, MePh 80 °C, 65% for **1aa** and 17% for **1ab**.

FIGURE 3

Table 1. Important spectroscopic data for compounds **4**, and the cassettes **1** and **2**.

	λ_{max} (abs)[a] (nm)	λ_{max} (ems)[a] (nm)	energy transfer (ET) efficiency[b,c] (%)	ratios of fluorescence intensities[c]
4a	504	515	-	-
4b	529	543	-	-
1aa	504	515	-	**1aa**:**4a** 1.5: 1.0
1ab	505 and 529	542	>90	**1ab**:**4b** 2.2:1.0
2aa	504	516	-	**2aa**:**4a** 1.6:1.0
2ab	505 and 529	543	>90	**2ab**:**4b** 1.7:1.0

[a] in $CHCl_3$. [b] where ET = {1 - (fluorescence intensity of donor emission in cassette)/(fluorescence intensity of donor alone)} x 100 % [c] excitation at 488 nm.

FIGURE 4